

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.

NEW CLAIMS

1. Substrate provided with a super-absorbent material in a form that results in the material having a significantly enlarged surface.
2. Substrate as claimed in claim 1, wherein the significantly enlarged surface is achieved by having the super-absorbent material in the form of a plurality of discrete, substantially semi-spherical islets with a diameter between 10 and 1000 μ , preferably between 50 and 500 μ , most preferably between about 100 and 200 μ .
3. Substrate according to claim 1 or 2, characterized in that the super-absorbent material is obtainable by allowing suitable monomers to polymerize in the presence of a catalyst in order to obtain a polymer solution, adding a cross-linking agent to the polymer solution to obtain a pasty composition, subsequently applying the composition on the substrate in the form of the discrete, substantially semi-spherical islets with a diameter between 10 and 1000 μ , preferably between 50 and 500 μ , most preferably between about 100 and 200 μ , and allowing the applied composition to dry and cross-link in order to obtain the substrate with the super-absorbent material.
4. Substrate as claimed in claim 1, 2 or 3, wherein the significantly enlarged surface is achieved by having the super-absorbent material in the form of a foam.
5. Substrate according to claim 1, 2 and 4, wherein the super-absorbent material is obtainable by allowing suitable monomers to polymerize in the presence of a catalyst in order to obtain a polymer solution, adding a cross-linking agent to the polymer solution to obtain a pasty composition, adding a foaming agent to the pasty composition, subsequently applying the composition on the substrate and either during or after application of the composition causing it to foam.

6. Substrat as claimed in claims 3 and 5,
characterized in that the pasty composition further
comprises other additives chosen from agents for changing
the viscosity of the composition, agents for improving
5 the adhesion of the super-absorbent material to the
substrate, agents for softening the super-absorbent
material, agents for making the composition conductive.

7. Substrate as claimed in claim 6,
characterized in that the agents for changing the
10 viscosity of the composition are chosen for instance from
acrylates, polyurethane or combinations thereof.

8. Substrate as claimed in claim 6,
characterized in that the agents for improving the
adhesion of the super-absorbent material to the substrate
15 are chosen from polyamide (PA), polyethylene (PE),
ethylene vinyl acetate (EVA) or combinations thereof.

9. Substrate as claimed in claim 6,
characterized in that the agents for softening the super-
absorbent material are plasticizers which co-polymerize
20 in the polymer.

10. Substrate as claimed in claims 3-9, wherein
the agents for causing the composition to foam after or
during application are chosen from Servo Amfolyt JA 140
'M, Nekanil'M or combinations thereof.

25 11. Substrate as claimed in any of the claims
3-10, characterized in that the cross-linking agent
contains two functional groups which are capable after
thermal excitation of reacting in a short time with
carboxylate or carbonic acid functional groups.

30 12. Substrate as claimed in any of the claims
1-11, characterized in that the composition contains soot
(carbon) to make the composition conductive.

35 13. Substrate as claimed in claims 3 and 5-12,
characterized in that instead of by polymerization the
polymer solution is prepared by dissolving an already
formed polymer in water or an aqueous solvent.

14. Substrate as claimed in any of the claims
1-13, characterized in that the super-absorbent material

~~is a cross-linked polyacrylate, polyamide, cellulose-like polymer or a combination thereof.~~

15. Substrate as claimed in any of the claims 1-14, characterized in that the substrate is a fabric, 5 non-woven, paper, film, aluminum tape, fibre or petrojelly-like filling compound.

16. Substrate as claimed in any of the claims 3 and 5-15, characterized in that the pasty composition consists of 95-99.9% by weight of an aqueous solution of 10 pre-cross-linked poly(meth)acrylic acid and 0.1-5, preferably 0.5-3% by weight of a cross-linking agent.

17. Method for manufacturing a substrate as claimed in claims 1 and 2, comprising of allowing suitable monomers to be polymerized in the presence of a 15 catalyst, adding thereto a cross-linking agent in order to obtain a pasty composition, subsequently applying the composition on a substrate in the form of discrete, substantially semi-spherical islets with a diameter between 10 and 1000 μ , preferably between 50 and 500 μ , 20 most preferably between about 100 and 200 μ , and allowing the applied composition to dry in order to obtain the substrate with the super-absorbent material.

18. Method for manufacturing a substrate as claimed in claims 1 and 3, comprising of allowing suitable monomers to be polymerized in the presence of a 25 catalyst, adding thereto a cross-linking agent in order to obtain a pasty composition, adding a foaming agent to the pasty composition, subsequently applying the composition on the substrate and either during or after 30 application of the composition causing it to foam.

19. Method as claimed in claims 17 and 18, characterized in that instead of by polymerization the polymer solution is prepared by dissolving an already formed polymer in water or an aqueous solvent.

35 20. Method as claimed in claim 17, characterized in that the composition is applied to the substrate by means of full surface coating.

21. Method as claimed in claim 17, characterized in that the composition is applied to the substrate by means of impregnating the substrate with the composition between two rollers.

5 22. Method as claimed in claim 17, characterized in that the composition is applied to the substrate by means of screen printing techniques.

10 23. Method as claimed in claim 18, characterized in that in the screen printing technique use is made of a template with a form, size and distribution of the openings such that the composition is applied to the substrate in the form of discrete islets.

15 24. Method as claimed in claim 23, characterized in that the form of the template openings is chosen such that the resulting islets are substantially semi-spherical.

20 25. Method as claimed in claim 24, characterized in that the diameter of the semi-spherical islets lies between 10 and 1000 μ , preferably between 50 and 500 μ , most preferably between about 100 and 200 μ .

26. Substrate as claimed in any of the claims 1-16 for use as sheathing material in cables.

27. Substrate as claimed in any of the claims 1-16 for use in hygiene products such as baby napkins, 25 sanitary towels and incontinence products.

28. Substrate as claimed in any of the claims 1-16 for use in or as packagings and packaging materials.

29. Substrate as claimed in any of the claims 1-16 for use in agricultural substrates.

30 30. Cable provided with a sheathing material which is formed from a substrate as claimed in any of the claims 1-16.

31. Hygiene product, such as baby napkin, sanitary towel and incontinence product, provided with a 35 substrate as claimed in any of the claims 1-16.

32. Hygiene products provided with absorption means which are formed by or at least partly consist of a substrate as claimed in any of the claims 1-16.

AMENDED SHEET

CONTINUATION - 120699

~~33. Packaging material which is formed by or at least partly consists of a substrate as claimed in any of the claims 1-16 or which comprises such a substrate.~~

~~34. Agricultural substrate formed by or at least partly consisting of a substrate as claimed in any of the claims 1-16.~~

5

add
A4 >

000217-04-060